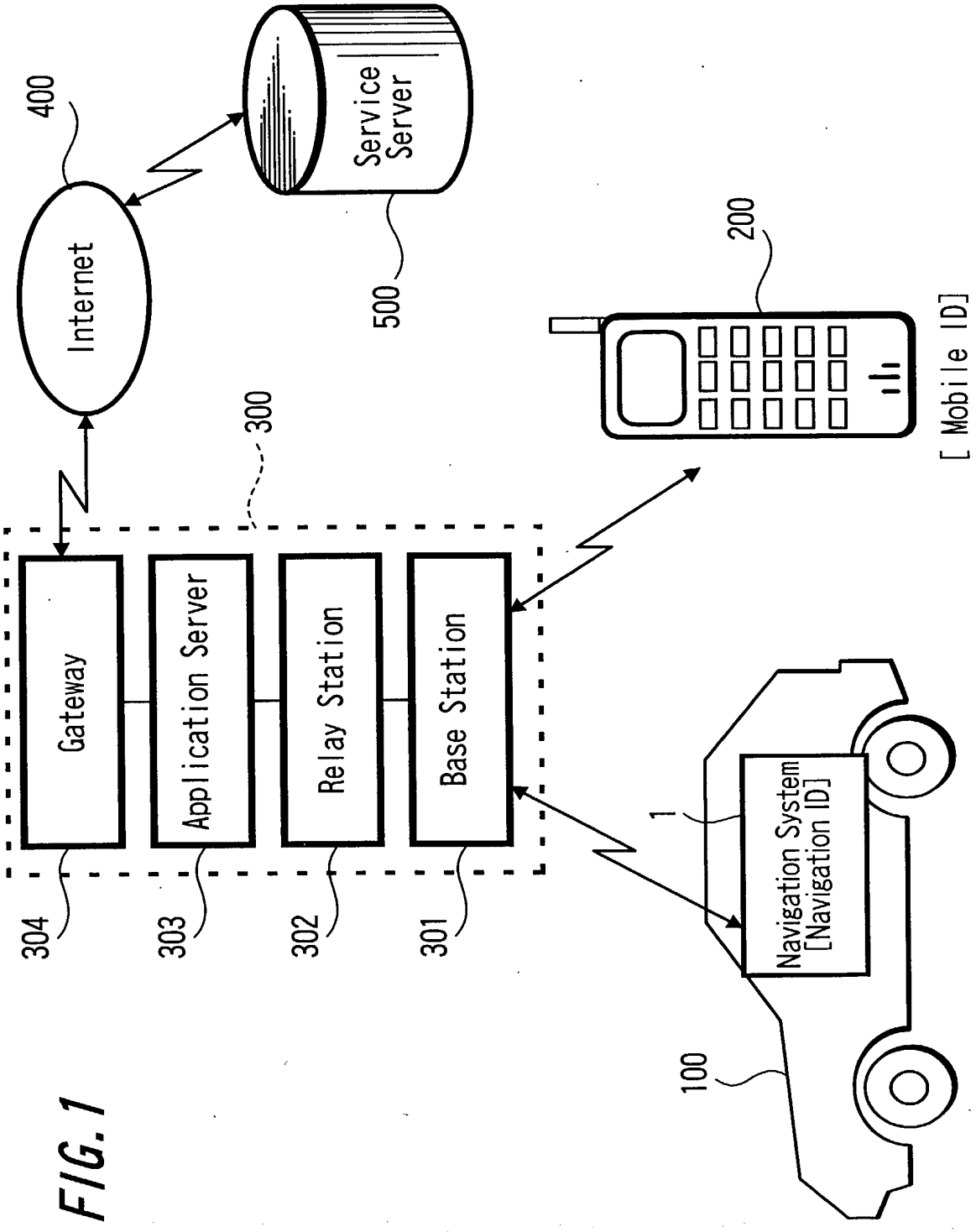

400
Internet
Service Server
500
200
[Mobile ID]
300
Gateway
Application Server
Relay Station
Base Station
304
303
302
301
1
Navigation System
[Navigation ID]
100

FIG. 1

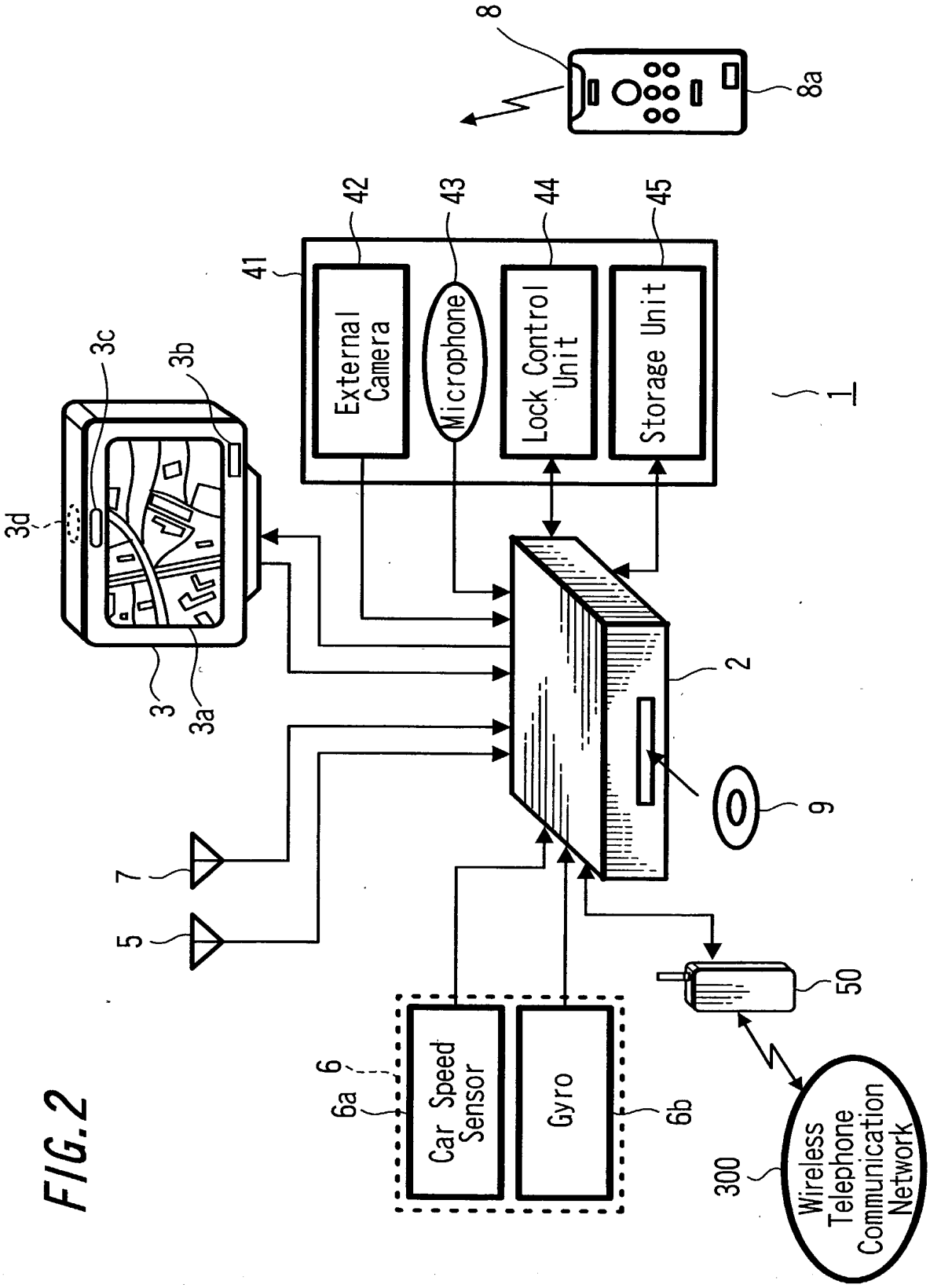
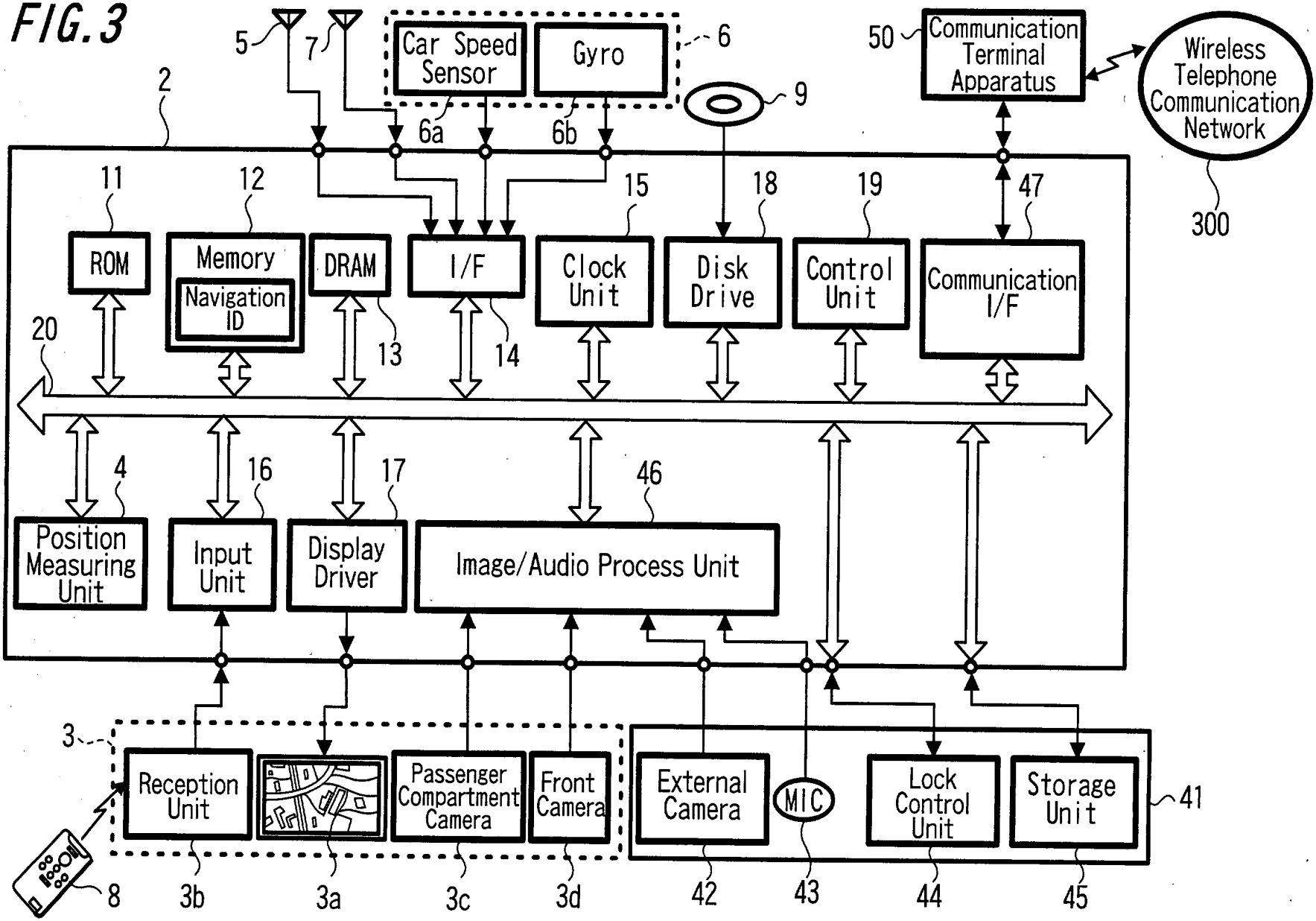

8
8a
42
43
44
45
41
External Camera
Microphone
Lock Control Unit
Storage Unit
1
3c
3b
3d
3
3a
2
9
7
5
50
6
6a
Car Speed Sensor
Gyro
6b
300
Wireless Telephone Communication Network

FIG.2

FIG. 3



JP2004-48 - 1748 - 1748

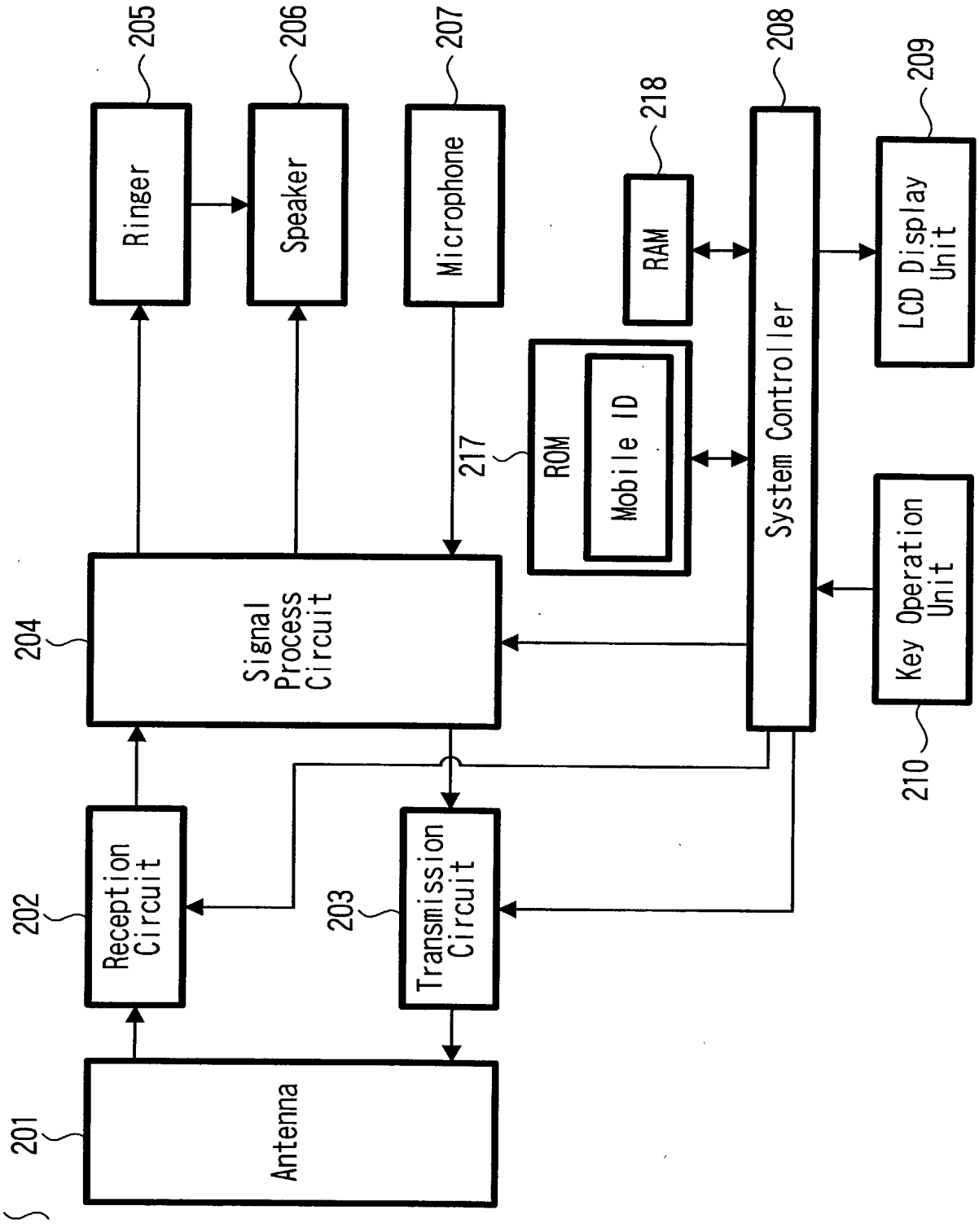
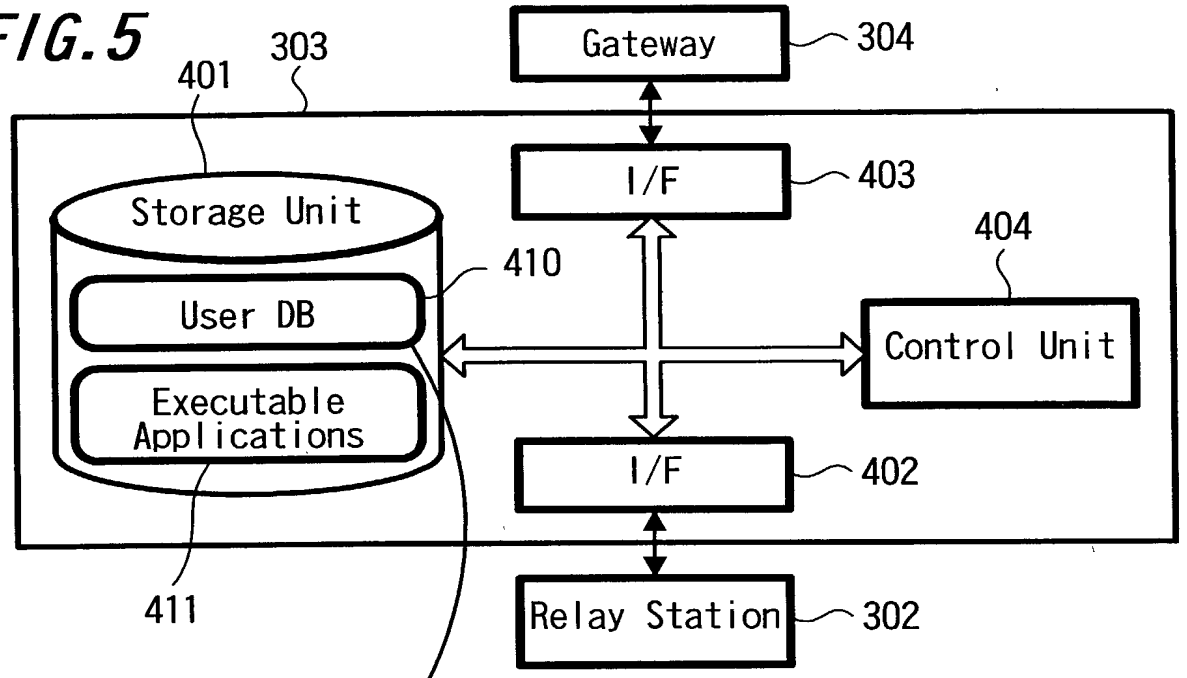

200
201
Antenna
202
Reception Circuit
203
Transmission Circuit
204
Signal Process Circuit
205
Ringer
206
Speaker
207
Microphone
208
System Controller
209
LCD Display Unit
210
Key Operation Unit
217
ROM
Mobile ID
218
RAM

FIG. 4

FIG. 5



1	User Information	Mobile ID (Telephone) Number	Navigation ID (Telephone) Number	Password
2				
3				

FIG. 6

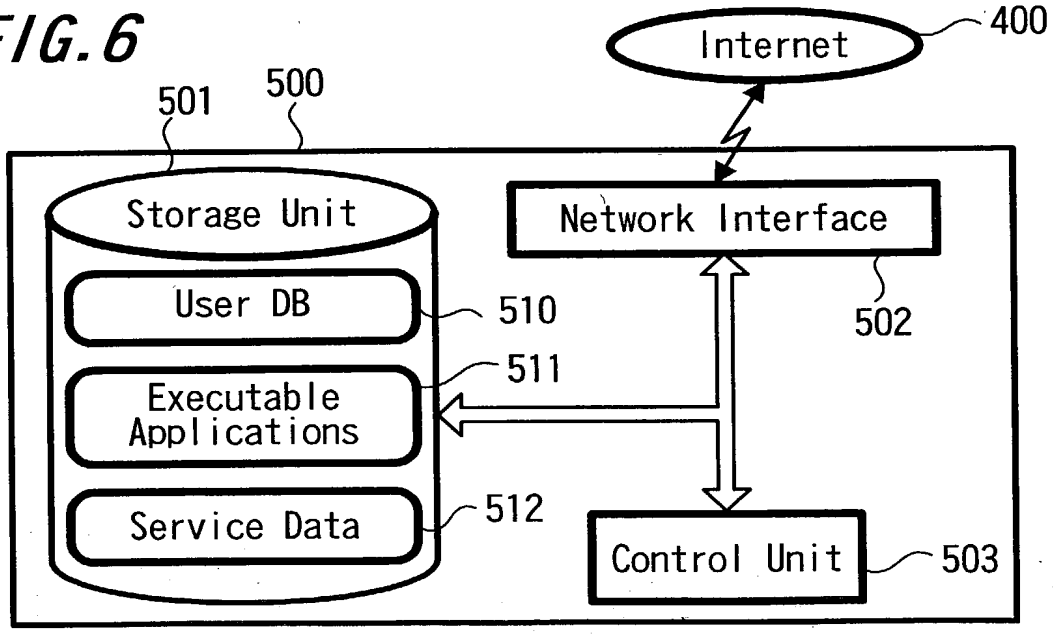
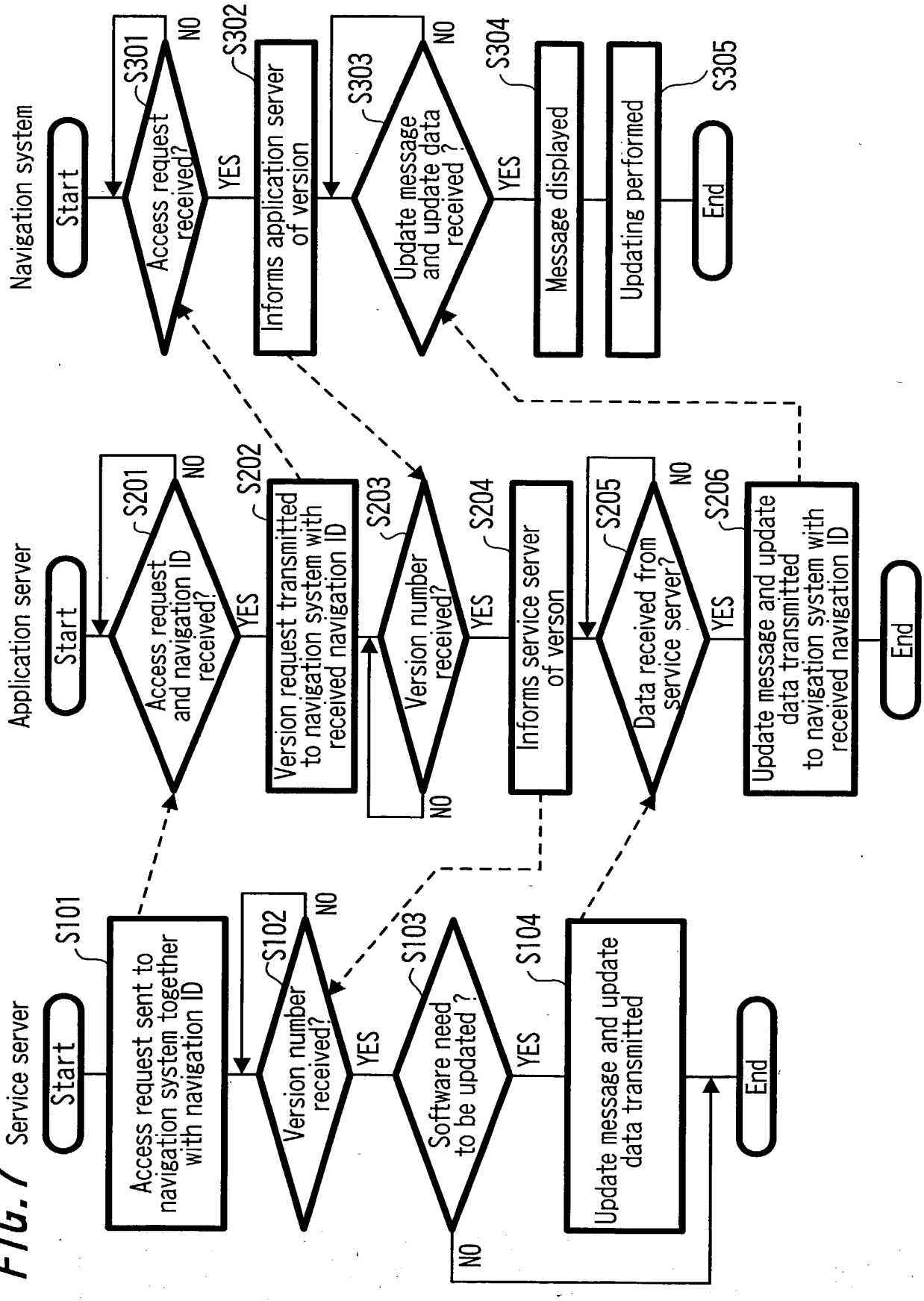


FIG. 7


Service server
Start
S101
Access request sent to navigation system together with navigation ID
S102
Version number received?
NO
YES
S103
Software need to be updated ?
NO
YES
S104
Update message and update data transmitted
End
Application server
Start
S201
Access request and navigation ID received?
NO
YES
S202
Version request transmitted to navigation system with received navigation ID
S203
Version number received?
NO
YES
S204
Informs service server of verson
S205
Data received from service server?
NO
YES
S206
Update message and update data transmitted to navigation system with received navigation ID
End
Navigation system
Start
S301
Access request received?
NO
YES
S302
Informs application server of version
S303
Update message and update data received ?
NO
YES
S304
Message displayed
S305
Updating performed
End

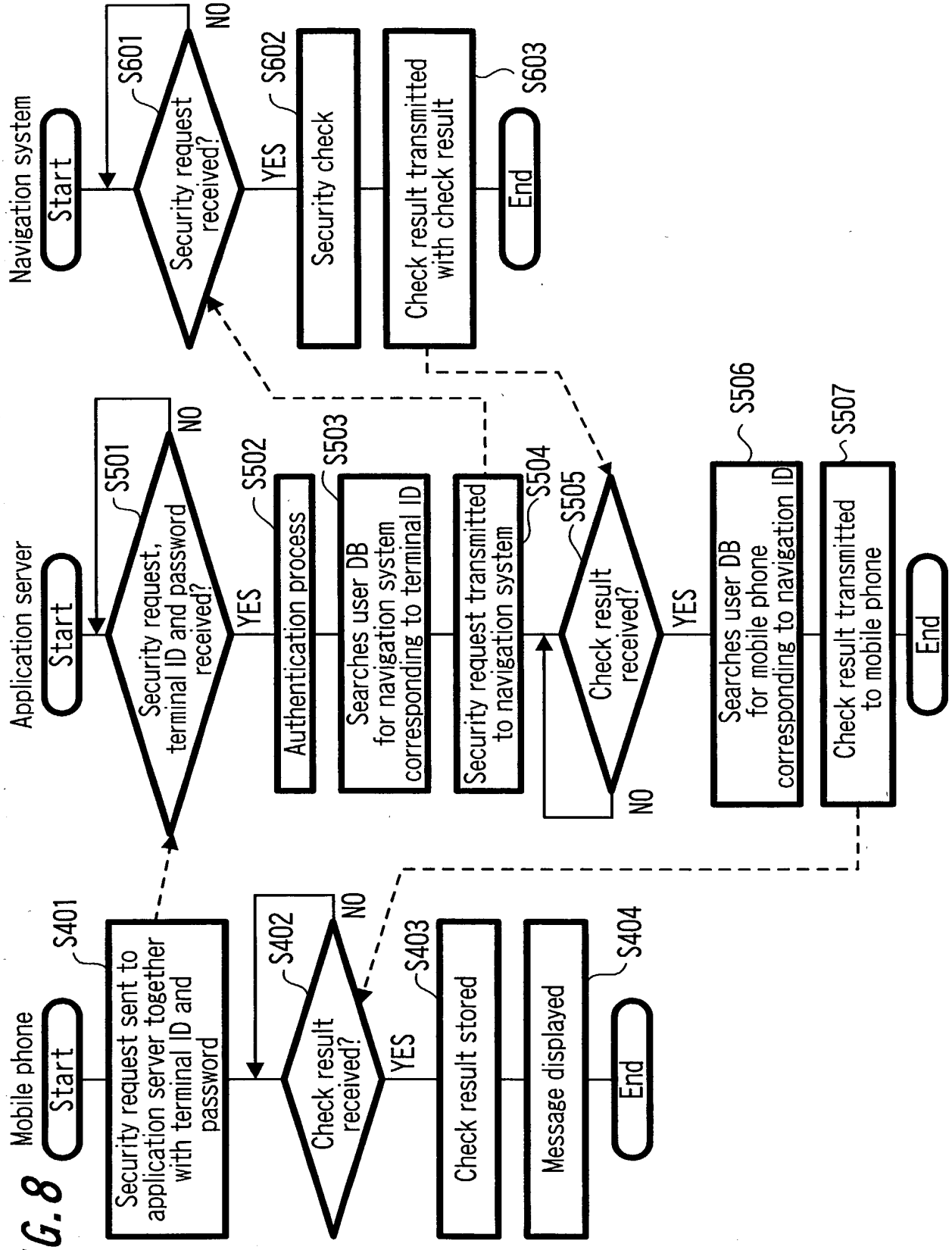

Mobile phone
Start
Security request sent to application server together with terminal ID and password
S401
Check result received?
S402
NO
YES
Check result stored
S403
Message displayed
S404
End
Application server
Start
Security request, terminal ID and password received?
S501
NO
YES
Authentication process
S502
Searches user DB for navigation system corresponding to terminal ID
S503
Security request transmitted to navigation system
S504
Check result received?
S505
NO
YES
Searches user DB for mobile phone corresponding to navigation ID
S506
Check result transmitted to mobile phone
S507
End
Navigation system
Start
Security request received?
S601
NO
YES
Security check
S602
Check result transmitted with check result
S603
End

FIG. 8

FIG. 9

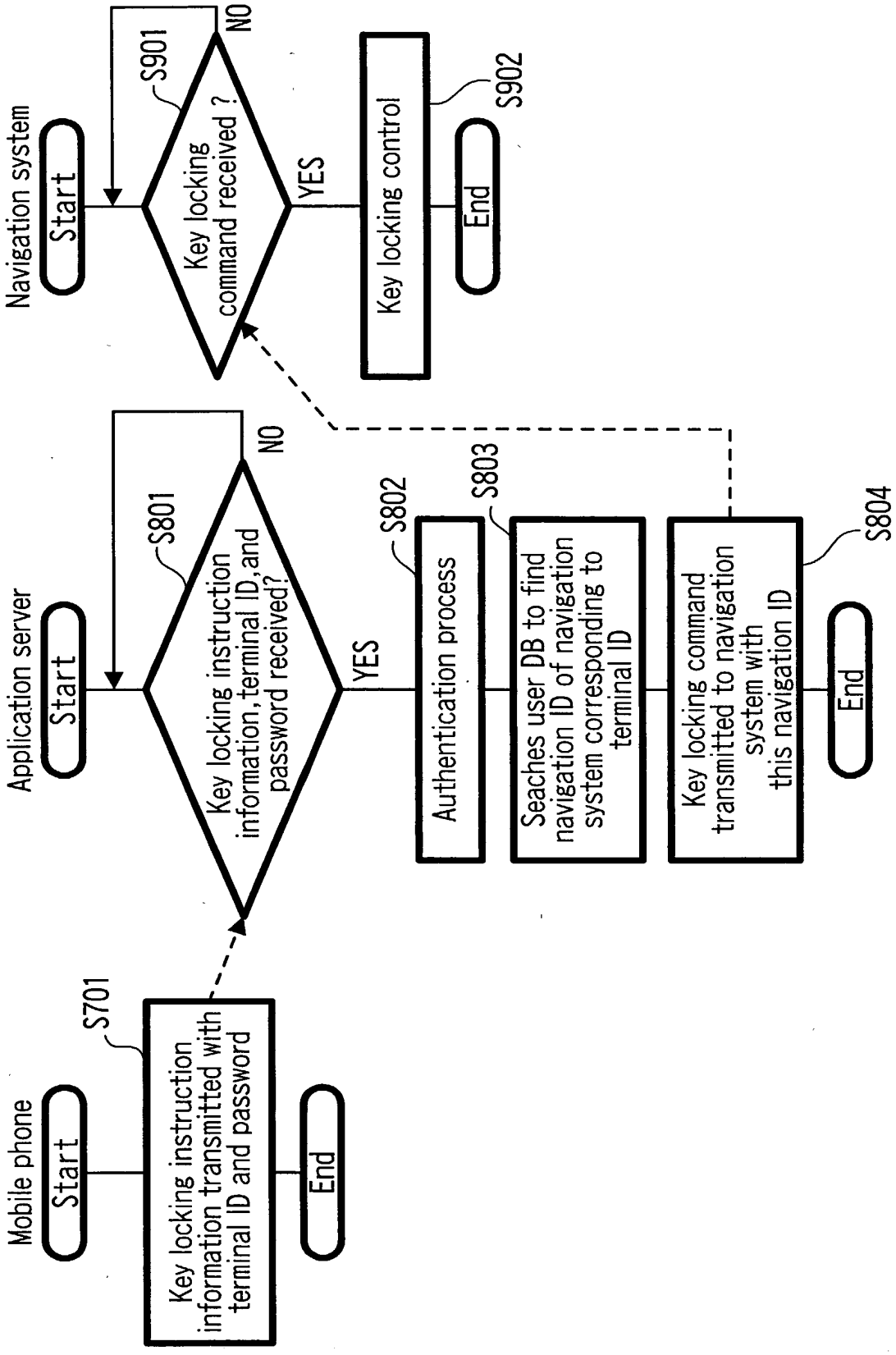
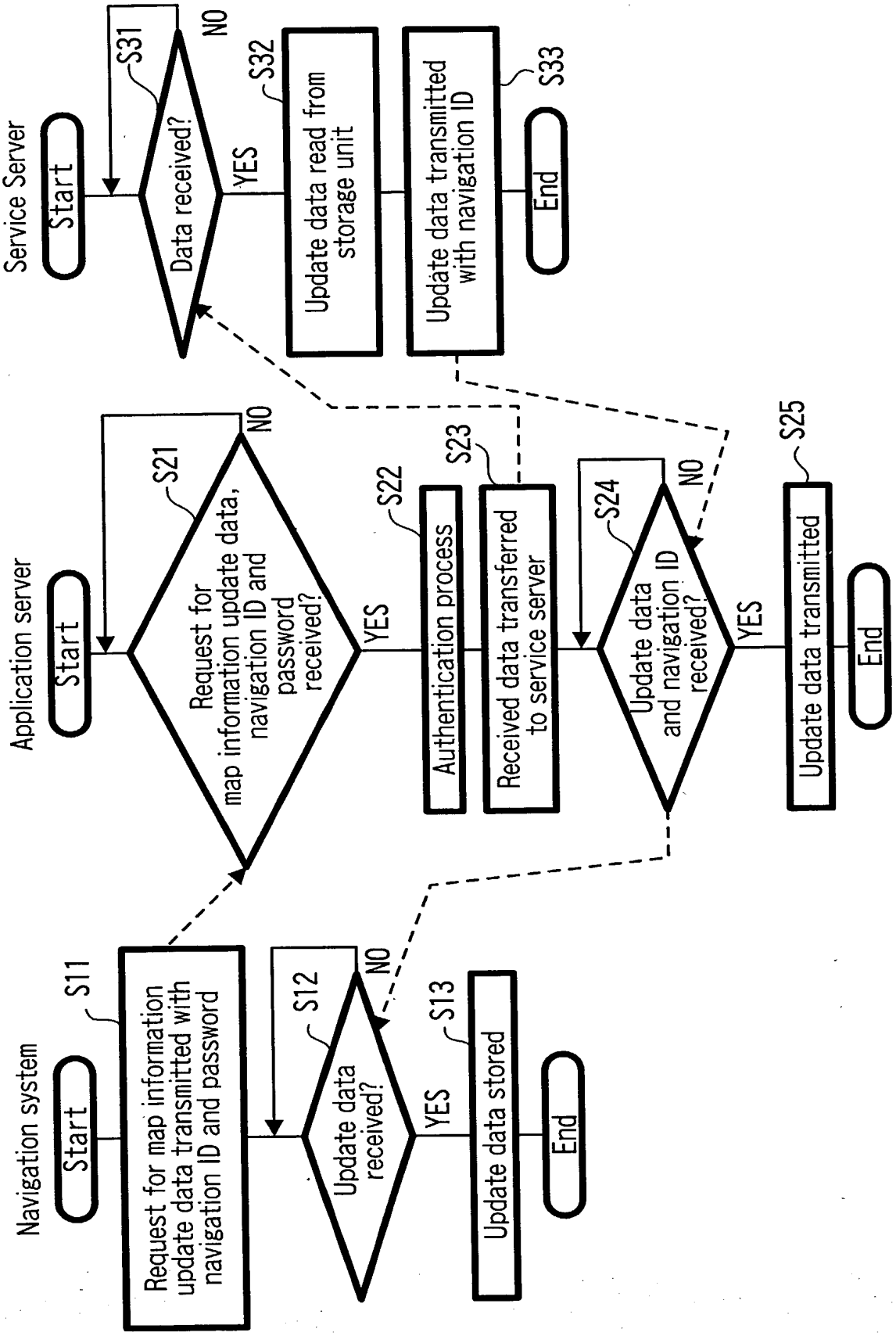

Mobile phone
Start
S701
Key locking instruction information transmitted with terminal ID and password
End
Application server
Start
S801
Key locking instruction information, terminal ID, and password received?
NO
YES
S802
Authentication process
S803
Seaches user DB to find navigation ID of navigation system corresponding to terminal ID
Key locking command transmitted to navigation system with this navigation ID
S804
End
Navigation system
Start
S901
Key locking command received ?
NO
YES
Key locking control
S902
End

FIG. 10


Navigation system
Start
S11
Request for map information update data transmitted with navigation ID and password
S12
Update data received?
NO
YES
S13
Update data stored
End
Application server
Start
S21
Request for map information update data, navigation ID and password received?
NO
YES
S22
Authentication process
S23
Received data transferred to service server
S24
Update data and navigation ID received?
NO
YES
S25
Update data transmitted
End
Service Server
Start
S31
Data received?
NO
YES
S32
Update data read from storage unit
S33
Update data transmitted with navigation ID
End

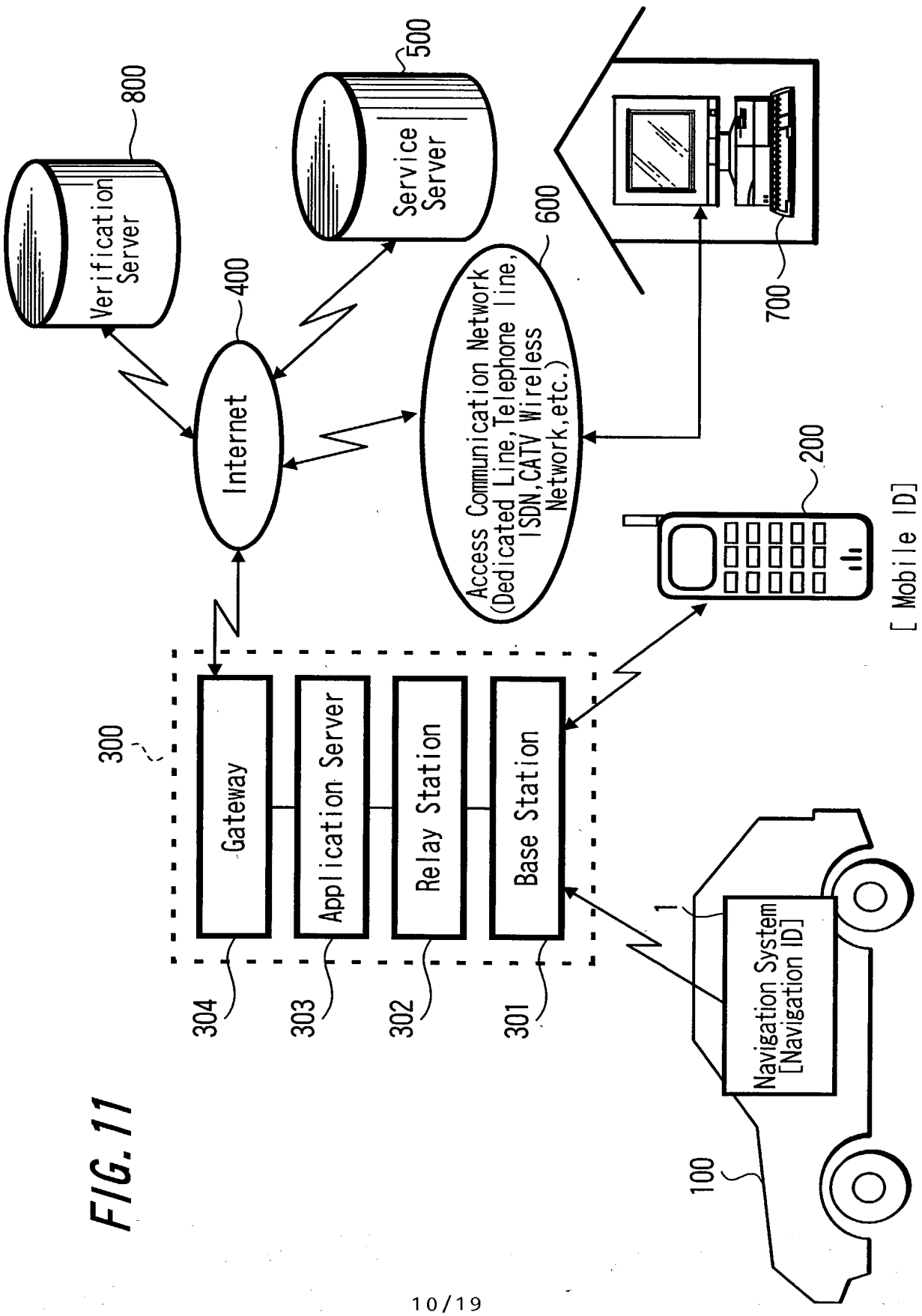

800
Verification Server
500
Service Server
600
Access Communication Network (Dedicated Line, Telephone line, ISDN, CATV Wireless Network, etc.)
400
Internet
700
200
[Mobile ID]
300
Gateway
Application Server
Relay Station
Base Station
304
303
302
301
1
Navigation System [Navigation ID]
100

FIG. 11

FIG. 12

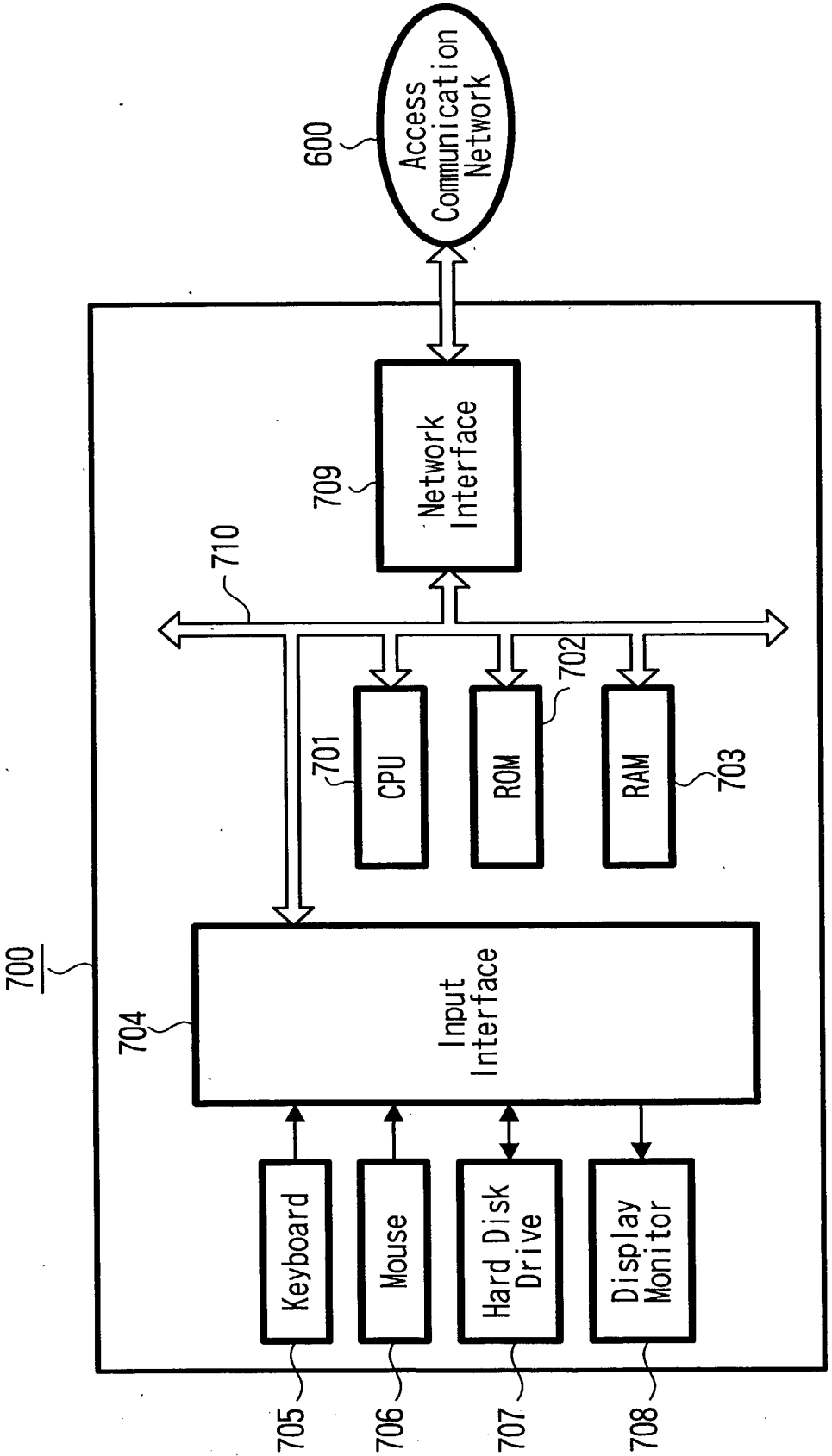
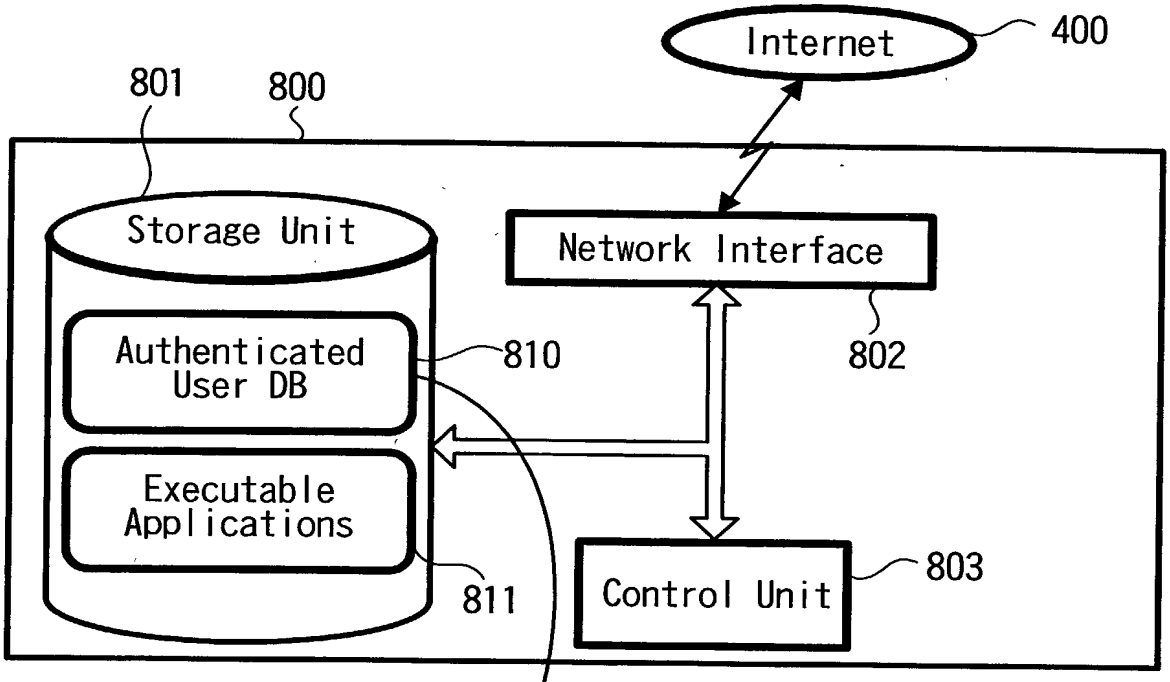

600
Access Communication Network
709
Network Interface
710
701
CPU
ROM
702
RAM
703
700
704
Input Interface
Keyboard
Mouse
Hard Disk Drive
Display Monitor
705
706
707
708

FIG. 13



1	User Information	Mobile ID (Telephone Number)	Navigation ID (Telephone Number)	PC-ID	Service ID
2					
3					

FIG. 14

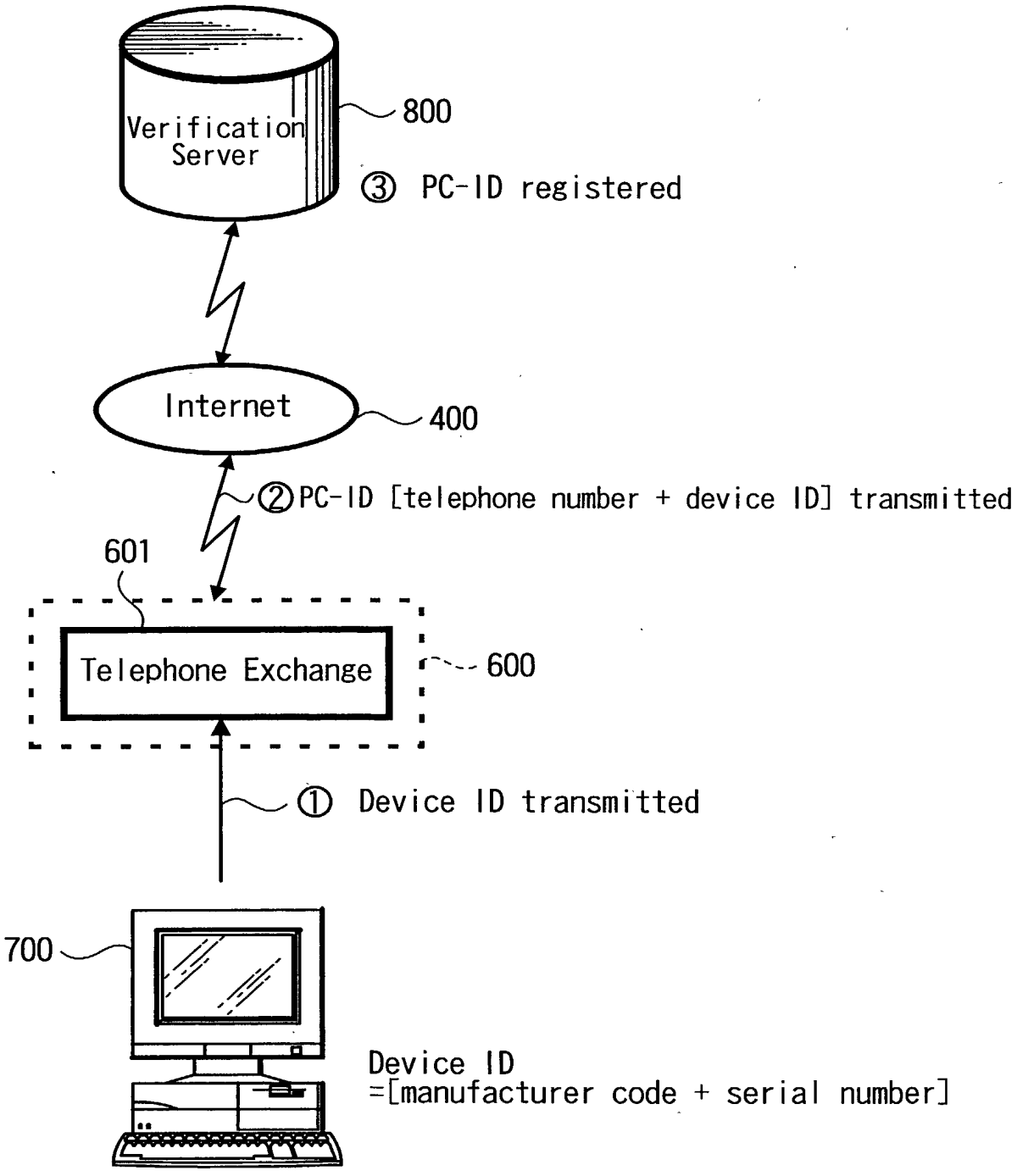

Verification Server
800
③ PC-ID registered
Internet
400
②PC-ID [telephone number + device ID] transmitted
601
Telephone Exchange
600
① Device ID transmitted
700
Device ID
=[manufacturer code + serial number]

FIG. 15

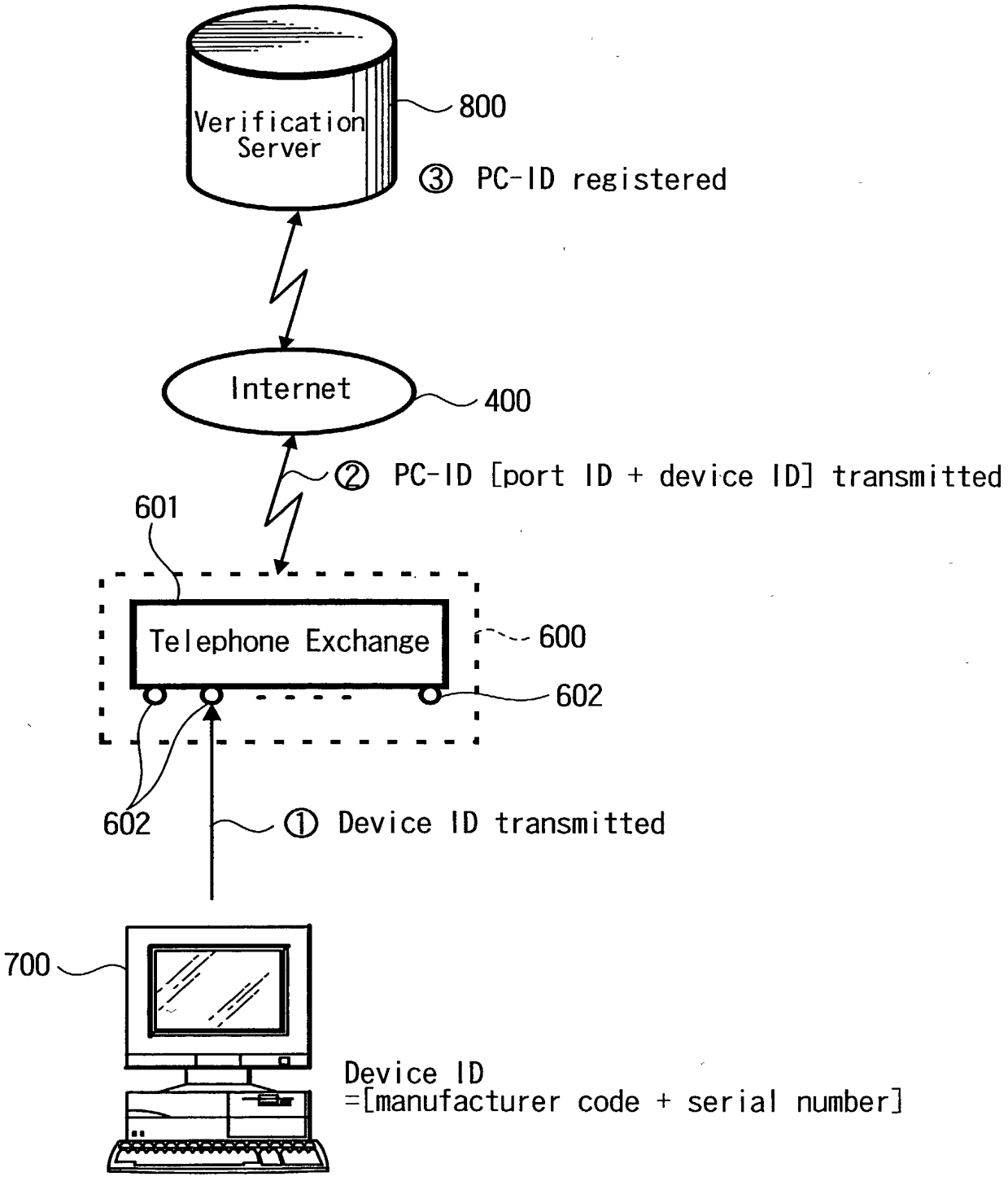

Verification Server
800
③ PC-ID registered
Internet
400
② PC-ID [port ID + device ID] transmitted
601
Telephone Exchange
600
602
602
① Device ID transmitted
700
Device ID
=[manufacturer code + serial number]

FIG. 16

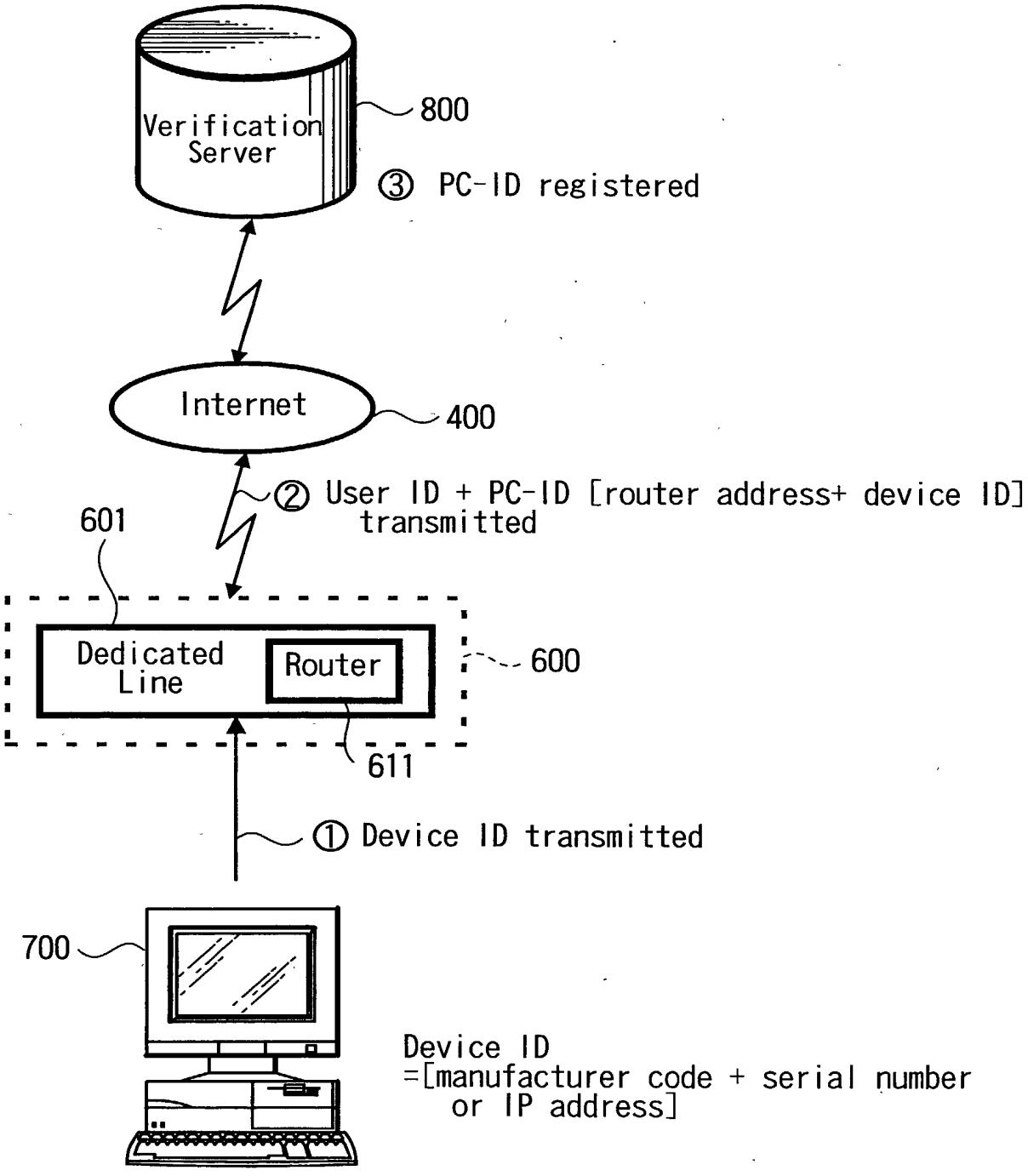
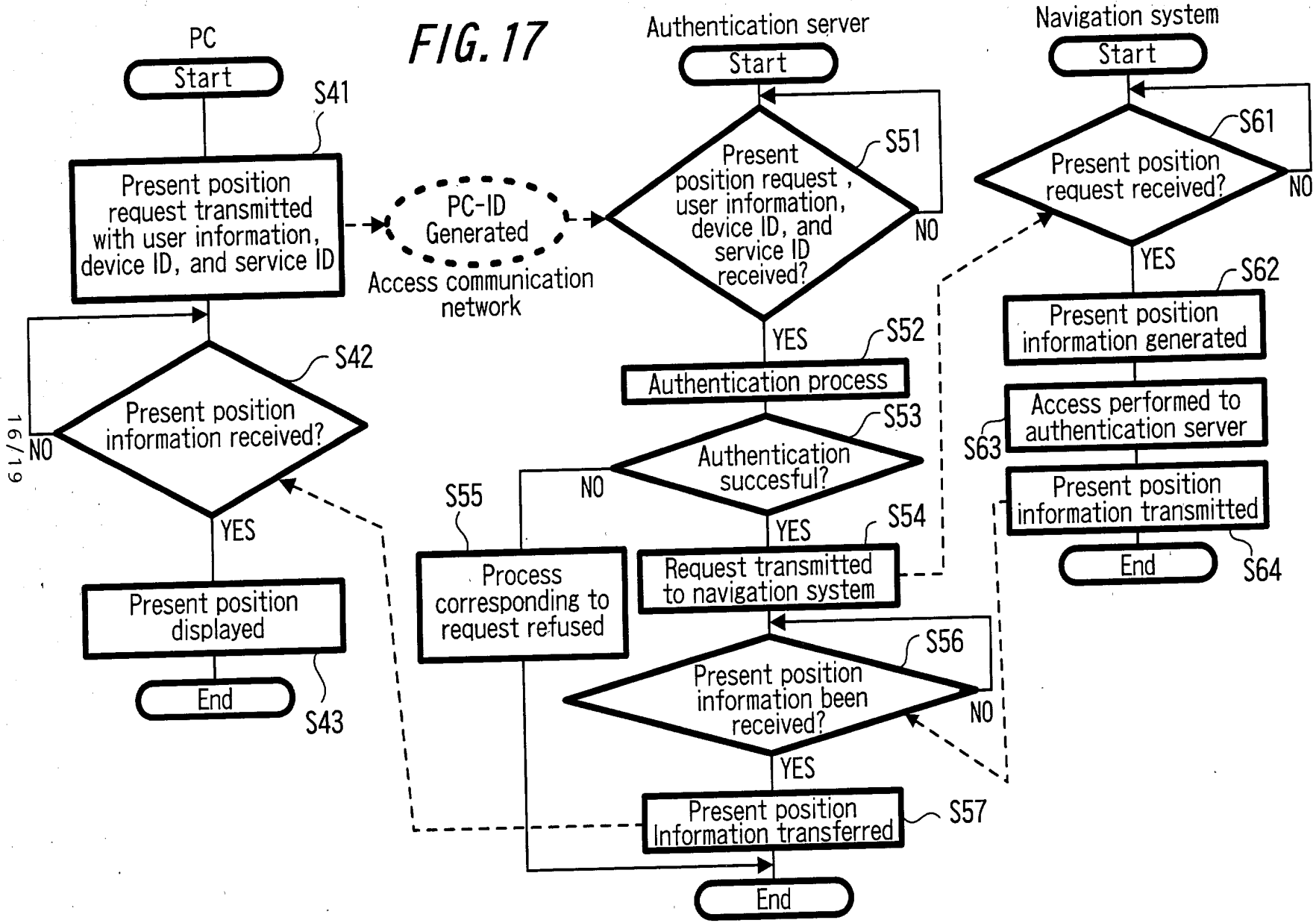

Verification Server
800
③ PC-ID registered
Internet
400
② User ID + PC-ID [router address+ device ID] transmitted
601
Dedicated Line
Router
600
611
① Device ID transmitted
700
Device ID
=[manufacturer code + serial number or IP address]

FIG. 17



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DESCRIPTION OF REFERENCE NUMERALS

1 ... navigation system

2 ... main navigation unit

3 ... display monitor unit

3a ... display screen

3b ... reception unit

3c ... passenger compartment camera

3d ... front camera

4 ... position measuring unit

8 ... remote controller

8a ... emergency key

9 ... recording medium

11 ... ROM

12 ... memory

13 ... DRAM

14 ... interface

15 ... clock unit

16 ... input unit

17 ... display driver

18 ... disk drive

19 ... control unit

20 ... bus

41 ... security system unit

45 ... storage unit

46 ... image/audio process unit

47 ... communication interface

50 ... communication terminal apparatus

200 ... ROM

201 ... antenna

202 ... reception circuit

203 ... transmission circuit

204 ... signal process

circuit

205 ... ringer

206 ... speaker

207 ... microphone

208 ... system controller

209 ... LCD display unit

210 ... key operation unit

217 ... ROM

218 ... RAM

301 ... base station

302 ... relay station

303 ... application server

401 ... storage unit

402,403... interface

404 ... control unit

410 ... user database

411 ... executable applications

500 ... service server

501 ... storage unit

502 ... network interface

503 ... control unit

510 ... user database

511 ... executable applications

512 ... service data

600 ... access communication network

700 ... personal computer

701 ... CPU

702 ... ROM

703 ... RAM

704 ... input/output interface

705 ... keyboard

706 ... mouse

707 ... hard disk drive

708 ... display monitor

709 ... network interface

710 ... internal bus

800 ... authentication server

801 ... storage unit

802 ... network interface

803 ... control unit

810 ... authenticated user database

811 ... executable applications